CHAPTER I

INTRODUCTION

1.1 Background of Research

In geotechnical engineering, we always face the problem of soil where the soil cannot reach the required specification for some constructions. As an example, the bearing capacity of soft soils is always too weak to support the superstructure above it before any soil treatment done. Consequently, soil stabilization is a very important part to be done before the construction carried out.

Lime stabilization is one of the methods of soil stabilization. It was used in many fields in the world, especially in geotechnical and agriculture field since many years ago for changing the soil characteristics so that the soil become more suitable for certain purposes.

In this research, which titled "*Determination of optimum concentration of lime solution for lime stabilization*", we will look into the problems facing by using the solid

limes as soil stabilizer and how the liquefied limes can help us in solving these problems. Meanwhile, the optimum concentration of the lime solution need to be determined so that the effect of the soil stabilization is same or even better than what we have by using solid limes.

1.2 Objective

The research objectives are as below: -

- To understand the problems facing as dealing with the solid limes for soil stabilization
- To improve the workability and effectiveness of lime by using lime solution
- To determine the optimum concentration of lime solution for soil stabilization

1.3 Scope of study

Lime stabilization is more suitable and effective to be used in fine-grained soil, such as clay. The present study is focused on the study of the optimum lime solution to be used in soil stabilization in clay. The clay will be used is kaolin from Tapah, Perak. The lime to be used in this research is hydrated lime, since it is not too exothermic and harmful to our skin compared to quicklime. The resource of hydrated lime is Limetreat Private Limited, Pasir Gudang Johor.